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10/603,792	06/24/2003	Thomas A. Maufer	NVDA P000804	3473

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EXAMINER	
MOORE JR, MICHAEL J	

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/603,792	MAUFER ET AL.	
	Examiner	Art Unit	
	MICHAEL J. MOORE JR	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-17 and 23-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-17 and 23-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/20/08 has been entered.

Claim Rejections - 35 USC § 101

The current amendment made by Applicant to paragraph 150 of the specification to obviate the rejections of claims **15-17** under 35 U.S.C. 101 presented in the Final Office Action is proper and has been entered. Accordingly, these particular rejections have been withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims **3, 4, 11, 12, 23, and 24** are rejected under 35 U.S.C. 102(e) as being anticipated by Bilic et al. (U.S. 7,050,437) (hereinafter "Bilic"). *Bilic* teaches all of the limitations of the specified claims with the reasoning that follows.

Regarding claim **3**, "a method for assembling a plurality of packet fragments into a packet" is anticipated by the frame reassembly method shown in Figure 2.

"Receiving a first packet fragment associated with a first packet" is anticipated by the reception of a fragment of a frame as spoken of on column 7, lines 48-51.

"Determining that the first packet fragment has a valid checksum" is anticipated by the IP header checksum computation of the frame reassembled from received fragments as spoken of on column 8, lines 48-52.

"Storing the first packet fragment in a reserved buffer space in memory corresponding to the first packet" is anticipated by the allocation of space in host memory 44 (buffer space) for received fragments of a frame as spoken of on column 8, lines 1-6.

"Starting a timer to measure a time period" is anticipated by the processor 34 setting a frame timer for the frame as spoken of on column 8, lines 8-9.

"Sorting the packet fragments in the reserved buffer space based on a fragment number associated with each packet fragment" is anticipated by the processor that organizes (sorting) the fragments in the host memory (buffer space) based on the fragment offset fields (fragment number) and length parameters in the fragment headers as spoken of on column 3, lines 23-25 as well as column 8, lines 31-34.

Lastly, "determining, at a predetermined time interval, whether any packet fragment associated with the first packet is missing" is anticipated by the processor that periodically determines that one or more fragments have been lost (missing) in the event that a given frame has not been reassembled completely within a predetermined time limit as spoken of on column 3, lines 30-33 as well as column 8, lines 14-19.

Regarding claim **4**, "wherein at least one packet fragment is missing at the end of the time period, and further comprising the step of clearing the reserved buffer space corresponding to the first packet" is anticipated by the processor 34 instructing logic 36 to free (clearing) the buffer space reserved for a frame having lost fragments as spoken of on column 8, lines 19-22.

Regarding claim **11**, "a computer readable medium storing instructions for causing a network interface to assemble a plurality of packet fragments into a packet" is anticipated by the frame reassembly method shown in Figure 2 performed by the header processor 34 (network interface) coupled to fast memory 32 (computer readable medium) as shown in Figure 1.

"Receiving a first packet fragment associated with a first packet" is anticipated by the reception of a fragment of a frame as spoken of on column 7, lines 48-51.

"Determining that the first packet fragment has a valid checksum" is anticipated by the IP header checksum computation of the frame reassembled from received fragments as spoken of on column 8, lines 48-52.

"Storing the first packet fragment in a reserved buffer space in memory corresponding to the first packet" is anticipated by the allocation of space in host

memory 44 (buffer space) for received fragments of a frame as spoken of on column 8, lines 1-6.

"Starting a timer to measure a time period" is anticipated by the processor 34 setting a frame timer for the frame as spoken of on column 8, lines 8-9.

"Sorting the packet fragments in the reserved buffer space based on a fragment number associated with each packet fragment" is anticipated by the processor that organizes (sorting) the fragments in the host memory (buffer space) based on the fragment offset fields (fragment number) and length parameters in the fragment headers as spoken of on column 3, lines 23-25 as well as column 8, lines 31-34.

Lastly, "determining, at a predetermined time interval, whether any packet fragment associated with the first packet is missing" is anticipated by the processor that periodically determines that one or more fragments have been lost (missing) in the event that a given frame has not been reassembled completely within a predetermined time limit as spoken of on column 3, lines 30-33 as well as column 8, lines 14-19.

Regarding claim **12**, "wherein at least one packet fragment is missing at the end of the time period, and further comprising the step of clearing the reserved buffer space corresponding to the first packet" is anticipated by the processor 34 instructing logic 36 to free (clearing) the buffer space reserved for a frame having lost fragments as spoken of on column 8, lines 19-22.

Regarding claim **23**, "a system for assembling a plurality of packet fragments into a packet" is anticipated by the network interface adapter 20 (system) of Figure 1 that performs the frame reassembly method shown in Figure 2.

"A central processing unit" is anticipated by the CPU 46 shown in Figure 1.

"A system memory coupled to the central processing unit" is anticipated by the host memory 44 shown in Figure 1.

"A network interface coupled to the system memory and the central processing unit" is anticipated by the header processor 34 (network interface) shown in Figure 1.

"Receive a first packet fragment associated with a first packet" is anticipated by the reception of a fragment of a frame by header processor 34 as spoken of on column 7, lines 48-51.

"Determine that the first packet fragment has a valid checksum" is anticipated by the IP header checksum computation of the frame reassembled from received fragments by header processor 34 as spoken of on column 8, lines 48-52.

"Store the first packet fragment in a reserved buffer space in memory corresponding to the first packet" is anticipated by the allocation of space in host memory 44 (buffer space) for received fragments of a frame by header processor 34 as spoken of on column 8, lines 1-6.

"Start a timer to measure a time period" is anticipated by the header processor 34 setting a frame timer for the frame as spoken of on column 8, lines 8-9.

"Sort the packet fragments in the reserved buffer space based on a fragment number associated with each packet fragment" is anticipated by the header processor 34 that organizes (sorting) the fragments in the host memory (buffer space) based on the fragment offset fields (fragment number) and length parameters in the fragment headers as spoken of on column 3, lines 23-25 as well as column 8, lines 31-34.

Lastly, "determine, at a predetermined time interval, whether any packet fragment associated with the first packet is missing" is anticipated by the header processor 34 that periodically determines that one or more fragments have been lost (missing) in the event that a given frame has not been reassembled completely within a predetermined time limit as spoken of on column 3, lines 30-33 as well as column 8, lines 14-19.

Regarding claim **24**, "wherein at least one packet fragment is missing at the end of the time period, and the network interface further configured to clear the reserved buffer space corresponding to the first packet" is anticipated by the header processor 34 instructing logic 36 to free (clearing) the buffer space reserved for a frame having lost fragments as spoken of on column 8, lines 19-22.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims **5-10, 13-17, and 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bilic et al. (U.S. 7,050,437) (hereinafter "Bilic") in view of Robotham et al. (U.S. 6,775,293) (hereinafter "Robotham") and in further view of Natanson et al. (U.S. 6,611,525) (hereinafter "Natanson").

Regarding claims **5, 13, and 25,** *Bilic* teaches the limitations as described above. *Bilic* further teaches the frame reassembly completion and storage in host memory 44 (memory) spoken of on column 8, lines 48-57.

Bilic does not teach "incrementing a counter of the network interface circuitry; checking a connection table entry for the first packet; responsive to non-existence of the connection table entry, sending the first packet to network interface software for preparing the first packet for the network interface circuitry; generate an address resolution table (ART) index for an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes, build the connection table entry, including the ART index, at least partially process the first packet, and send the first packet as processed to the network interface circuitry; forwarding the first packet from the network interface circuitry; clearing the buffer of the first packet responsive to forwarding the first packet; and decrementing the counter".

However, *Robotham* teaches the incrementing of count values of count table 40 (counter) as received data units (packets) are stored in the buffer 20 as spoken of on column 2, lines 45-48.

Robotham also teaches the referencing (checking) of a context table (connection table) upon reception of data units (packets) as spoken of on column 2, lines 43-45.

Robotham also teaches transmission block 50 that determines stream identifiers (packet processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

Robotham also teaches transmission block 50 that transmits (forwards) the fetched data units (packets) as transmitted data units as spoken of on column 3, lines 56-58.

Robotham also teaches the dequeuing of data from the buffer (clearing the buffer) for forwarding as spoken of on column 2, lines 49-50.

Robotham also teaches the decrementing of count values of count table 40 (counter) as data units are retrieved from the buffer and transmitted as spoken of on column 3, lines 62-64.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the above packet buffering and processing teachings of *Robotham* with the above fragmentation and reassembly teachings of *Bilic* in order to provide an efficient method of buffering and processing reassembled packets for onward transmission as spoken of on column 3, lines 56-58 of *Robotham*.

Robotham does not teach that "responsive to non-existence of the connection table entry, sending the first packet to network interface software for preparing the first packet for the network interface circuitry, the network interface software for generating

an address resolution table (ART) index for an address resolution table entry that stores a media access control (MAC) address and MAC layer attributes" and "building the connection table entry, including the ART index".

However, *Natanson* teaches a method of MAC address learning, where a hash table 76 is created, and where new entries are added (responsive to non-existence of entry) by adding the new MAC source address that functions as an index to a corresponding LEC_ID as spoken of on column 15, lines 46-54.

Natanson also teaches how two tables, an LE_ARP table having MAC (index) to ATM address mappings, and an LEC_ID table, having ATM address (index) to LEC_ID mappings, are used in conjunction to retrieve a particular LEC_ID corresponding to a MAC address (index) as spoken of on column 15, lines 55-60.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the MAC address index teachings of *Natanson* with the context table teachings of *Robotham* in order to allow for the efficient processing of new flows of packets (using fragmentation and reassembly) originating from end users using MAC enabled (e.g. Ethernet, 802.11) devices.

Regarding claims **6, 15, and 26**, *Bilic* further teaches UDP/IP packet processing as spoken of on column 7, lines 7-11.

Regarding claims **7, 14, and 27,** *Robotham* further teaches that the count values (total count signal) in the count table 40 are adjusted to always reflect the current state (whether packets have been partially processed) of the buffer 20 as spoken of on column 3, lines 62-66.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the above packet buffering and processing teachings of *Robotham* with the above fragmentation and reassembly teachings of *Bilic* in order to provide an efficient method of buffering and processing reassembled packets for onward transmission as spoken of on column 3, lines 56-58 of *Robotham*.

Regarding claims **8 and 16,** *Robotham* further teaches transmission block 50 that utilizes the stream identifier (do not use flag) to retrieve the set of independent group identifiers corresponding to the particular stream from the context table 30 as spoken of on column 3, lines 50-53.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the above packet buffering and processing teachings of *Robotham* with the above fragmentation and reassembly teachings of *Bilic* in order to provide an efficient method of buffering and processing reassembled packets for onward transmission as spoken of on column 3, lines 56-58 of *Robotham*.

Regarding claims **9, 10, and 17**, *Robotham* further teaches transmission block 50 (having network interface software) that determines stream identifiers (packet processing) corresponding to fetched data units (packets) as spoken of on column 3, lines 45-49.

At the time of the invention, it would have been obvious to someone of ordinary skill in the art, given these references, to combine the above packet buffering and

processing teachings of *Robotham* with the above fragmentation and reassembly teachings of *Bilic* in order to provide an efficient method of buffering and processing reassembled packets for onward transmission as spoken of on column 3, lines 56-58 of *Robotham*.

Response to Arguments

7. Applicant's arguments with respect to *amended* claims **3-17 and 23-27** have been considered but are moot in view of the new ground(s) of rejection provided above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Malagrino et al. (U.S. 6,714,985) is another reference considered pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL J. MOORE, JR., whose telephone number is (571)272-3168. The examiner can normally be reached on Monday-Friday (7:30am - 4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing F. Chan can be reached at (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J. Moore, Jr./
Examiner, Art Unit 2619